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The Impact of Comprehension Activities Supported by Web 2.0 Tools on Students' Reading and Listening Comprehension Achievement

Aysenur Kolcubasi, Esra Karakus Taysi

Abstract

Background/purpose. Developing language skills and keeping up with technology have become crucial for the efficient use of technology in language education. This study examined the effect of teaching reading and listening skills with activities supported by Web 2.0 applications on fifth-grade secondary school students' reading and listening comprehension.

Materials/methods. The study used the pretest-posttest control group quasi-experimental design, one of the quantitative research methodologies, with the participation of 72 fifth-grade students at a state secondary school in Istanbul. The lessons in the experimental groups were conducted using activities for comprehension skills from the textbook supported by Web 2.0 applications, while the lessons in the control group were conducted using activities based on the Turkish textbook. The data was collected using the "Reading Comprehension Achievement Test" developed by Karasu et al. (2013) and the "Listening Comprehension Achievement Test" developed by Bulut (2013).

Results. Although there was no significant difference between the pre-test scores of the students in the experimental and control groups, there was a difference between the post-test scores. Accordingly, teaching comprehension activities supported by Web 2.0 applications effectively improved students' achievement at greater reading and listening comprehension levels.

Conclusion. Web 2.0 applications, which facilitate the development of basic language skills, enrich the course content, and enable students to actively participate in class, should be widely used to improve reading and listening comprehension skills. Teachers should use Web 2.0 tools in their teaching as an important tool to make learning environments more participatory and updated, in line with the goals of the lesson and the individual needs of students.

1. Introduction

Human beings have tended to improve their skills throughout history to adapt to changes in the world. People who lived by hunting began to engage in agriculture and later invented writing. The invention of writing, which made life easier, was one of the most important developments for humanity. Successive developments in agriculture, industry, and technology have played an active role in shaping social life. With the advent of recent technologies such as artificial intelligence, humanity has entered a new era, which has significantly accelerated changes in education, work or daily life following the COVID-19 pandemic and the inclusion of many digital applications or tools not previously used in education or the learning process has become essential.

How individuals adapt to this new age depends on their readiness to participate in the information society, in which qualified knowledge and its transfer have become crucially important. One of the foundations of access to and production of qualified information is the correct and functional use of language. For example, getting proper information using artificial intelligence requires asking the right questions using appropriate language. Therefore, developing language skills has gained significance for health communication and the efficient use of novel technologies.

The acquisition and development processes of language skills imply that people first acquire the listening skill, and the development of listening skills begins in the womb. When an individual is born, he/she tries to make sense of what is happening around him/her by listening. Thus, listening skill forms the basis of language learning (Kaldırım, 2020). The individual builds up his/her knowledge by listening until they start school and conveys what he/she perceives through speaking, one of the productive skills. At school, listening and speaking skills are to be developed together with reading and writing skills. In this regard, studies investigating how to improve language skills in formal education need to consider the reflections of technology on education based on the Turkish Course Curriculum because developing technology affects educational and instructional processes in many ways. In the Turkish Curriculum of the Ministry of National Education (2019), under the title of “competencies,” the necessity of providing students with digital competence is emphasized. As one of the 21st-century skills, this competence, which is directly related to digital literacy, is of great importance in teaching and learning processes (Türkben & Arat, 2024). It is necessary to consider the reflections of technology on education in developing reading and listening comprehension skills in the context of Turkish lessons.

With the development of technology, the time that individuals allocate for reading in digital environments has increased. Reading in digital environments is affected by many features of these environments. The characteristics of these environments, the different qualities of digital reading tools, the change in the traditional understanding of text, and the characteristics of reading practices determine the effects of developing technology on reading comprehension skills (Çetin, 2022). Redecker et al. (2011) recommend the effective use of Web 2.0 tools for developing digital literacy and critical thinking skills, which are among the 21st-century skills. They state that these tools provide a suitable ground for developing language skills in mother tongue education processes such as Turkish lessons. In addition, the structure of a Turkish lesson is particularly suitable for using Web 2.0 tools and is open to the use of technology and creativity.

Garrison and Anderson (2003) stated that digital tools used in education play an important role in supporting students' meaning-making and critical-thinking processes. In language-oriented courses such as Turkish lessons, these tools can increase students' access to information and their ability to process this information. These tools can contribute to the development of each of the language skills when used in Turkish lessons (Aslan & Özdemir, 2023). Anderson (2007) stated that Web 2.0 technologies provide a powerful platform for collaboration, content creation, and sharing in learning processes. These technologies encourage the active participation of learners and allow individuals to

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customize their own learning processes. This shows that they can be instrumental in areas that require interactivity and creativity, such as language learning. In this regard, Web 2.0 applications appear to be suitable technological tools to support teaching and learning thanks to their suitability for the target audience, efficiency, and economics. Franklin and Harmelen (2007) define Web 2.0 applications as environments where users are actively involved in the process, communicate with other users, and work in teams. In addition, Web 2.0 applications provide many advantages to users. For example, users can create and share their own content with interactive Web 2.0 applications and carry out teamwork (Gündüzalp, 2022). In education grounded on the goal of preparing students for life, it is important to use Web 2.0 tools to support learning in accordance with the objectives of the courses and the skills to be taught (Elmas & Geban, 2012).

2. Literature Review

The widespread use of these tools in educational and instructional processes has brought about many questions. What is the contribution of these tools to educational environments? Which tools should be used and when? Can Web 2.0 applications be used to improve language skills? Many studies have been conducted in the literature to seek answers to these and many similar questions (Akçay & Şahin, 2012; Aslan, 2007; Baki & Feyzioğlu, 2017; Bal, 2018; Batıbay, 2019; Bolat et al., 2017; Bozkurt, 2013; Çelebi & Satırlı, 2021; Deperlioğlu & Köse, 2010; Demir Öztürk et al., 2020; Duran & Ertan Özen, 2018; Durusoy, 2011; Elmas & Geban, 2012; Genç, 2010; Gülbahar et al., 2020; Gündoğdu, 2017; Horzum, 2010; İnal & Arslanbaş, 2021; Karadağ & Garip, 2021; Karakuş Tayşi, 2018; Kuzhan & Fidan, 2020; Kır, 2019; Orhan Göksun et al., 2018; Özcan, 2020; Özdemir, 2017; Özipek, 2017; Yazar, 2019; Yükseltürk & Top, 2020; Yıldız & Ateşli, 2022; Yılmaz, 2017; Zirve, 2017). These studies often focused on the introduction of Web 2.0 applications, their use in teacher training, their effect on academic achievement in Turkish lessons, and their use in teaching Turkish as a foreign language. Among these studies, no study has been found investigating the effect of Web 2.0 tools on students' achievement in understanding what they read and listen to in Turkish lessons. In addition, no study provides examples of applications for developing reading and listening skills in teaching Turkish as a native language nor shows how existing textbooks can be used with these applications. However, in the age of technology, listening and reading are the skills that provide the foundation for accessing information, making sense of it, and questioning its reliability. Therefore, the current study aimed to test the effect of using Web 2.0 tools in comprehension activities on students' achievement in understanding what they read and listen to. Analyzing the effect of these tools on comprehension skills will also show how existing textbooks can be made more functional with the use of such applications.

The current study aims to investigate the effect of Web 2.0 applications used in Turkish lessons on the development of comprehension skills of fifth-grade students. In line with this purpose, the study particularly addresses the following research questions:

1. Is there a significant difference between the pre-test scores of the experimental and control group students?
2. Is there a significant difference between the pre-post test scores of the experimental group students?
3. Is there a significant difference between the pre-and post-test scores of the students in the control group?
4. Is there a significant difference between the post-test scores of the experimental and control group students?

Methods and techniques that lag behind the requirements of the new age should not be used in education and training processes; instead, it is beneficial to use enriched content supported by digital tools by taking advantage of the new opportunities provided by these technologies for education.

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Web 2.0 technologies have brought a new dimension to offering technology-enhanced classes and facilitating classroom activities to teach and develop comprehension skills. Web 2.0 applications can contribute significantly to students' success in reading and listening comprehension. Dabbagh and Kitsantas (2012) emphasize that Web 2.0 technologies contribute to the development of language skills by combining individual and social learning environments. Digital environments can help students improve their reading and listening skills and strengthen their critical thinking and creative expression skills. Duffy and Bruns (2006) state that Web 2.0 tools such as blogs, digital storytelling tools, and podcasts are particularly effective in developing reading and listening skills. These tools support students' meaning-making processes both individually and in group work. Therefore, using Web 2.0 tools in Turkish lessons is important to develop comprehension skills such as reading and listening. Web 2.0 tools offer many course materials and content for the four basic language skills that are intended to be developed in the context of Turkish lessons. However, studies testing the effect of these tools on comprehension skills in Turkish lessons are limited in the literature. Curriculum developers, teachers, students, and parents must investigate the effects of materials created by advanced technologies on teaching and learning. In this respect, the current study investigates the influence of using Web 2.0 tools to facilitate students' reading and listening comprehension achievement within the framework of the objectives set in the Turkish Course curriculum concerning the use of technology. The limited number of studies testing the effect of Web 2.0 tools on language skills in literature makes this research even more significant. By providing concrete suggestions for the effective use of technology in education, the study aims to both fill the gap in the literature and guide the use of innovative and effective methods in Turkish lessons.

3. Methodology

3.1. Research Method

This study used a quasi-experimental design with a pretest-posttest control group, which is one of the quantitative research methods. According to Gliner et al. (2017), the most widely used research design in educational sciences research is the quasi-experimental design with a pretest-posttest control group (as cited in Kaldırım, 2020). In quasi-experimental studies, the pretest is first applied to the experimental and control groups simultaneously. Following the application process, the posttest is applied to the groups. This method adds a high statistical power to the research and allows the determination of whether there is a causal relationship between the results obtained following the experimental process (Büyüköztürk, 2001).

In quasi-experimental designs, groups can be determined as experimental and control groups unbiasedly, but the participants in these groups cannot be assigned to the groups unbiasedly (Kaldırım, 2020). If the researchers artificially form groups that will participate in the application process, students' formal education processes will be disrupted. This is another reason why quasi-experimental designs are widely used in the field of educational sciences (Creswell & Poth, 2016). When using quasi-experimental designs in studies in the field of educational sciences, researchers conduct their studies with predetermined groups. However, during this process, some problems arise because the participants are not or cannot be assigned to the groups impartially. In this study, to measure the reading and listening comprehension achievement by the activities supported by Web 2.0 tools, the quasi-experimental study method was used because it was impossible to unbiasedly assign the 5th-grade students at the school where the application would be carried out. The researcher determined the experimental and control groups unbiasedly among those studying in a secondary school in the Esenyurt district of Istanbul province, showing similar characteristics (achievement scores, class sizes, etc.) based on prior analysis. Thus, problems affecting the internal validity of the quasi-experimental research method were reduced. This study aimed to determine whether the independent variable (activities for comprehension skills supported by Web 2.0

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applications) affected the dependent variable (reading and listening comprehension achievement of fifth-grade students). Accordingly, it was deemed appropriate to structure the study in an experimental model. A tabular representation of the study design is given in Table 1.

Table 1. Tabulated representation of the study.

	Reading and listening comprehension achievement test		Reading and listening comprehension achievement test
Experimental group	O1	Web 2.0 activities	03
	D1		D3
Control group	O2	Textbook	O4
	D2		D4

Table 1 shows that the Reading and Listening Comprehension Achievement Pretest was administered to the participants O1, D1, O2, and D2, and the Reading and Listening Comprehension Achievement Posttest was administered to the participants O3, D3, O4, and D4. For the study, two groups of fifth-grade middle school students at equal levels (academic level, class size, technological adequacy of classes, etc.) were selected, and one was assigned to the experimental group and the other to the control group. The experimental procedure lasted 10 weeks. At the end of the process, a posttest was administered to both groups. During the implementation process in the experimental and control groups, care was taken to ensure no difference in the time and effort spent between the groups, and homework assignments were assigned in the same way in both groups.

3.2. Study Group

The study was conducted on fifth-grade students attending a public school in the Esenyurt district of Istanbul. Four fifth-grade classes participated in the study. Since a quasi-experimental research design was used, no population and sample were selected (Kaldırım, 2020). Instead, the study group was determined, and care was taken to ensure that these groups were equivalent in terms of reading and listening comprehension achievement levels. Information about the gender of the fifth-grade middle school students is presented in Table 2.

Table 2. Tabulated representation of the groups

Gender	Experimental group	Control group
Female	20	19
Male	16	17
Total	36	36

As seen in Table 2, the experimental group consists of 36 students: 20 females (55.5%) and 16 males (44.5%). The control group consists of 36 students: 19 females (52.77%) and 17 males (47.23%).

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3.3. Data Collection Tools

3.3.1. Reading comprehension achievement test

Achievement tests are assessment tools prepared to measure students' academic development after the teaching process is carried out based on an educational program (Bloom et al., 1971). The reading comprehension achievement test, which was used as a pre-test and post-test in the study, consisted of eight open-ended questions concerning reading comprehension and was prepared by Karasu et al. (2013). The highest score that could be obtained from the test was 80, and the lowest score was 0. The content validity of the test was ensured based on the reading achievements in the fifth-grade Turkish Language Teaching Program. In order to support construct validity, a pre-application was conducted, and expert opinions were consulted.

The reliability of the test was calculated as (α=.75). According to Özdamar (2017), a Cronbach's alpha coefficient between 0.70 and 0.90 indicates that the reliability of the scale is high.

The rubric prepared by Karasu et al. (2013) was used to evaluate the students' responses to the open-ended questions in the reading comprehension achievement test in an unbiased and reliable manner.

3.3.2. Listening comprehension achievement test

In the study, Bulut (2013) developed an achievement test for the pretest and posttest. The test consisted of twenty-two multiple-choice questions on listening comprehension. The content validity of the test was ensured by associating it with the 5th-grade listening outcomes in the Primary Turkish Language Teaching Program. In order to support construct validity, the test was subjected to pre-application, and expert opinions were taken. The reliability of the test was previously evaluated with the Kuder-Richardson 20 (KR-20) coefficient, which was calculated as 0.92. Within the scope of this study, the reliability analysis of the test was conducted again, and Cronbach's Alpha coefficient was found to be 0.78, which suggested that the test could be used in the current study. Necessary permissions were obtained from the test developers for use in the study.

3.4. Data collection and application process

This section gives the steps followed by the experimental and control groups during the study. The study was implemented in the fall semester of the 2021-2022 academic year. The experimental process started with the preparation phase. During this stage, the necessary permissions were obtained from the Istanbul Provincial Directorate of National Education and the school where the study would be conducted. The experimental and control groups comprised four classes selected from the fifth-grade classes of the school where the researcher worked. These classes were divided into experimental and control groups because the researcher's teacher taught in these classes, and the Turkish course achievements of the classes were close to each other. This made it easier to plan the lessons and the research process.

Next, the experimental and control groups were selected. The activities to be implemented were prepared using Web 2.0 tools. After obtaining opinions from 3 field experts and conducting a pilot application, the activities were finalized by making the necessary corrections.

The experimental and control groups were selected from four classes of fifth graders at the school where the researcher worked. The experimental and control groups were constructed from these four classes because the researcher taught in these classes, and the students' achievements in Turkish classes were similar. In this way, planning the lessons and the research process became easier.

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After the preparation phase, pretests were administered to the groups. First, the reading and comprehension achievement tests were respectively administered to the experimental and control groups during the same week. While administering the listening comprehension achievement test, the researcher read each listening text twice to the experimental and control groups. Then, students were given one minute to answer each question.

After the pretest was completed, the experimental group started activities. Before starting the activities, the experimental group was informed about the process. A few activities prepared with Web 2.0 tools were carried out to help students familiarize themselves with the applications and get used to using them.

The implementation process was carried out in the experimental group, with textbook activities supported by Web 2.0 applications to improve reading and listening comprehension. The Turkish textbook was used as the primary instruction material in the control group.

All the activities in the textbook to develop comprehension skills were transformed into activities that could be done using Web 2.0 applications. While the researcher prepared these activities, some were taken directly. In contrast, others were modified according to the structure of the application to be used without touching the essence of the activity. The activities in the fifth-grade Turkish textbook were adapted to be used in Web 2.0 tools by considering the objectives set in the curriculum.

The researcher, a Turkish teacher, completed the implementation process in 10 weeks. Thanks to being present in the experimental environment and knowing the students well, the researcher could quickly find solutions to problems that arose during the implementation process. This also facilitated the efficient operation of the research process. In addition, the teacher's direct control of the experimental process ensured that the implementation progressed smoothly.

3.5. Sample activities created using Web 2.0 applications

The textbook activity supporting the achievement of the objective "determines the story elements in the text" was uploaded to the mind map creation application Popplet (See Figure 1), and the students filled in the story elements map. In the control group, the study was conducted using an activity from a Turkish textbook.

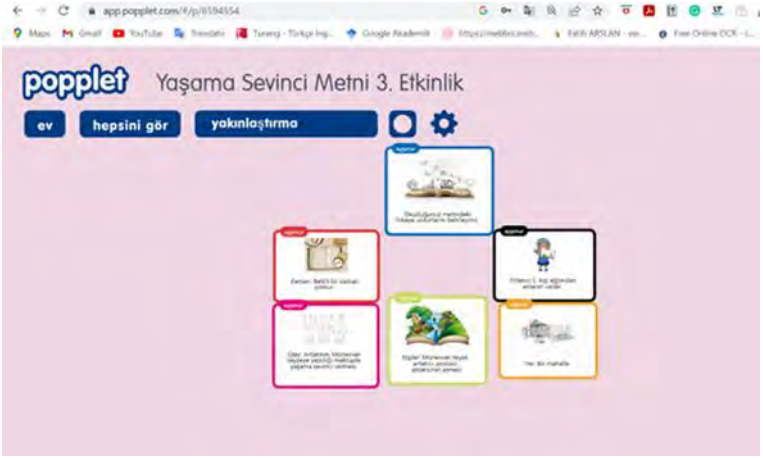

Figure 1. Activity created with the Popplet application

The activities in the Turkish textbook were carried out using Quizmaker and Educandy applications (see Figure 2 for an example) within the scope of the objective of "making inferences about what he/she reads."

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Figure 2: Activity created with the Educandy application

Activities included in the textbook to support the accomplishment of the objectives of "guesses the meaning of unfamiliar words and word groups when he/she listens/watches," "guesses the meaning of unfamiliar words and word groups by making use of the context," "answers questions about the text," "understands how important points are emphasized in the text" were conducted using the Wordwall and Learning Apps applications. An illustration is presented in Figure 3.

Figure 3. Activity created with the Wordwall application

Figure 4. Activity created with the Learning Apps application

An activity was created with the Emaze application to support the accomplishment of the objective: "evaluate the content of what he/she listens/watches." By changing the activity in the book without touching its essence, visuals and vocalizations appropriate to the content of the text were

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added, and a visually and audibly rich study was created for students. Figure 5 presents an example visual of the activities prepared using the applications.

Figure 5. Activity created with the Emaze application

3.6. Data Analysis

Quantitative data was collected on Web 2.0 applications, the independent variable in the study, using the "Listening Comprehension Achievement Test" and "Reading Comprehension Achievement Test" administered as pre-test and post-test. The results from these tests were analyzed using the SPSS program. First, the histogram graph, coefficient of variation, skewness and kurtosis values, Q-Q graphs, and the Shapiro-Wilk normality test were conducted to assess whether data was normally distributed. The results indicated that the scores obtained from the tests were usually distributed. Shapiro-Wilk values for the pre-test scores are given in Table 3, and for the post-test scores in Table 4.

Table 3. Shapiro-Wilk test normality of the pre-test scores of the students in the experimental and control groups

Shapiro-Wilk				
		Statistic	df	Sig.
Pretest Results	Experimental group	,968	18	,756
	Control group	,964	18	,674

Values in Table 3 support the assumption of normality for pre-test scores (p=.756>.05 p=.674>.05). The p-value shown as (Sig.) in the table is more significant than 0.05, indicating that a normal distribution is achieved (Can, 2020).

Table 4. Shapiro-Wilk test normality of the post-test scores of the students in the experimental and control groups

	Shapiro-Wilk			
		Statistic	df	Sig.
Posttest results	Experimental group	,927	18	,174
	Control group	,961	18	,613

Similarly, values in Table 4 support the assumption of normality for post-test scores (p=.174>.05 p=.613>.05).

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The significance level (p> 0.05) found in the Shapiro-Wilk test suggests using parametric tests in the data analysis. The Independent Samples t-test was used to compare the measurements of two different groups, and the Dependent Samples t-test was used to compare the measurements of the same group. The significance level was taken as 0.05 in the achievement tests as the number of observations used in t-tests to test the sub-problems and interpret the findings is small.

4. Results

The findings are presented in the order of the research questions posed in the introduction section. The first research question concerned whether there was a significant difference between the groups' Reading and Listening Achievement Test pretest scores. The relevant data are presented in Table 5.

Table 5. Independent samples t-test results for the reading and listening achievement test pretest scores of the students in the experimental and control group

	N	X	Ss	t	p
Experimental group	18	61,11	15,90	1,798	0,41
Control group	18	51,27	16,90		

As presented in Table 5, the mean of the experimental group students' Reading and Listening Achievement Test pre-test scores was 61.11, and 51.27 for the control group students. No statistically significant difference was found between the groups regarding the Reading and Listening Achievement Test pretest scores (p>0.05). In this context, it can be stated that there was no significant difference between the reading and listening comprehension achievements of the students in the groups before starting the experimental process.

The second research question concerned whether there was a significant difference between the Reading and Listening Achievement Test pretest scores and posttest scores of the students in the experimental group.

Table 6. Dependent samples t-test results for the reading and listening achievement test pretest and posttest scores of the students in the experimental group

Experimental Group	N	X	Ss	t	p
Pretest results	18	61,11	16,39	-2,535	0,02
Posttest results	18	74,55	13,26		

As shown in Table 6, the mean of the Reading and Listening Achievement Test pretest scores of the students in the experimental group was 61.11, and the mean of the Reading and Listening Achievement Test posttest scores was 74.55. A statistically significant difference was found between the experimental group students' Reading and Listening Achievement Test pretest and post-test scores (p<0.05). These results show that the implementation caused an increase in the reading and listening comprehension achievements of the students in the experimental group.

The third research question concerned whether there was a significant difference between the Reading and Listening Achievement Test pretest and posttest scores of the students in the control group. The results of the relevant analysis are presented in Table 7.

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Table 7. Dependent samples t-test results for the reading and listening achievement test pretest and posttest scores of the control group students

Control Group	N	X	Ss	t	p
Pretest results	18	51,27	16,90		
				-,453	0,65
Posttest results	18	54,22	15,53		

The mean of the Achievement Test post-test score was 54.22. No statistically significant difference was found between the Reading and Listening Achievement Test pretest and posttest mean scores of the control group students (p>0,05). As a result, no difference was identified between the reading and listening comprehension achievements of the students in the control group.

The fourth research question concerned whether there was a significant difference between the students' reading and listening achievement test post-test scores in the experimental and control groups. The results of the analyses are presented in Table 8.

Table 8. Independent samples t-test results for the reading and listening achievement test posttest scores of the students in experimental and control group

	N	X	Ss	t	p
Experimental group	18	74,55	13,26	4,22	0,01
Control group	18	54,22	15,53		

As shown in Table 8, the mean of the Reading and Listening Achievement Test posttest scores of the experimental group students was 74.55, while the mean of the posttest scores of the students in the control group was 54.22. A statistically significant difference was identified between the groups regarding Reading and Listening Achievement Test post-test scores (p<0.05). This demonstrates that the experimental process positively affected the students' reading and listening comprehension achievement in the experimental group.

5. Discussion

The current study aimed to determine the effect of comprehension skill-oriented activities supported by Web 2.0 tools on fifth-grade students' reading and listening comprehension achievement. The results showed a significant difference in favor of the experimental group, in which activities to develop comprehension skills were carried out with the support of Web 2.0 tools. The results of the current study concur with those of many studies investigating the effect of Web 2.0 tools on academic achievement.

The study by Keskin (2021) examined the effect of Web 2.0 applications on students' academic achievement and attitudes in Turkish lessons. The study determined that the use of Web 2.0 applications positively affected students' attitudes toward the lessons and their academic achievement. The study by Bolat et al. (2017) revealed that the online exam system based on a game positively affected academic achievement. Kahoot was used as an online exam answering system application, and it was stated that this application enriched the learning processes and contributed to students' learning. In addition, it was stated that when using Web 2.0 tools such as Kahoot, learning environments should be created by considering students' differences. Using Web 2.0 applications suitable for students' differences in teaching environments will enable students to be engaged in different learning experiences and ensure an efficient learning process (Karakose and Tülübaş, 2024; Yıldız & Ateşli, 2022). Selwyn (2010) noted how Web 2.0 technologies foster social collaboration and interaction in education and how using these tools supports more profound learning experiences

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among students. The study also suggested that these tools could be strategically used in future education policies. In another study, it was stated that a collaborative learning environment designed in accordance with the use of Web 2.0 technologies had a significant effect on academic achievement (Gündoğdu, 2017; Karakose et al., 2024b). Supporting this result, Akçay and Şahin (2012) stated in their study that the WebQuest technique positively affected students' academic achievement in Turkish lessons and their attitudes toward the lessons. It is stated that applications such as Web Adventures, which foster collaborative learning and critical thinking, were critical for students to continue learning outside the class and spend quality time online. In another study, the effect of digital stories created with the Tondoo application on student achievement and attitudes was investigated, and it was found that the activities carried out with digital stories via Toondoo had a positive impact on students' academic achievement (Gömleksiz & Pullu, 2018; Karakose et al., 2024a; Papadakis et al., 2024). In the study examining the effect of idiom teaching using concept cartoons created with Toondoo on academic achievement, Soylu (2020) concluded that they positively affected students' academic achievement. Rashid and Asghar (2016) stated that technological tools support academic achievement by increasing student engagement and self-directed learning skills. This result aligns with the findings that Web 2.0 tools enabled students to participate more actively in learning and positively changed their attitudes toward the courses. Ciğerci (2015) investigated digital stories used in Turkish lessons to examine their effects on the listening skills of fourth-grade primary school students. The results of the study indicated an improvement in students' listening skills in the experimental group after the activities with digital stories were included in the course. In other words, listening activities carried out with digital stories improved students' listening comprehension skills in the experimental group. Collen (2007) examined the effect of digital stories on listening comprehension and concluded that the rate of students answering questions correctly was higher in the lesson conducted by watching digital stories. This result shows that digital stories, including watching while listening, make the listening comprehension process more effective. Another study investigated the effect of multimedia-supported listening texts on students' listening comprehension skills (Kır, 2019). The results showed that teaching with multimedia-supported texts positively affected students' listening skills in the experimental group. Several other studies revealed that having students watch videos using the ELVES method allowed creating multimedia-supported activities or practice with both visual and auditory texts prepared with the Windows Movie Maker program, increased students' achievement in listening comprehension, and also positively affected their attitudes towards the lesson (Özdener & Eşfer, 2009; Türkyılmaz, 2010).

In light of the literature, it can be concluded that when classical learning environments are transformed into visual and auditory-rich, multimedia-supported learning environments with the use of technological tools, the active participation of students positively affects the learning processes (Khine & Lourdusamy, 2003). The customizable structure of Web 2.0 tools enables the creation of more effective and functional learning environments by considering students' individual differences. This leads to an increase in motivation and, consequently, an increase in achievement. The study was phenomenologically designed using qualitative research methods for the Learning Apps application, which is one of the studies conducted with different tools in a Turkish lesson. As a result of the opinions collected from fifteen sixth-grade students, it was concluded that the students liked Learning Apps very much, it was fun, it allowed for student-based evaluation processes, and the features of Learning Apps could be used in studies to increase the retention of information (Karadağ & Garip, 2021). Tüysüz and Çümen (2016) stated that students better reinforced what they have learned and revised more efficiently in technology-supported learning environments. It is known that allowing students to take an active role in the learning process and learn by doing and experiencing makes the learning process more efficient and increases the retention of information (Müldür & Çevik, 2014). In this context, students' active participation in the lesson can be increased by using Web 2.0 applications. A study by Tenekeci (2020) concluded that web applications increased

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students' desire to participate in the lesson because they presented rich visual and auditory stimuli. In Karakuş Tayşi's (2018) study examining the opinions of students who used computer-aided materials in Turkish lessons, students stated that they liked Turkish lessons more thanks to computer-aided materials. Students stated that the lessons involving these applications were more interesting, fun, and exciting as well as supporting their cognitive development. Sevim and Sayır (2017) reached a similar result in their study. The majority of the students stated that teaching lessons with interactive whiteboards made the lesson more interesting. As these results suggested, the active use of Web 2 applications in lessons provides immersive, interactive, and engaging learning experiences apart from academic achievement.

Digitally supported studies in mother tongue education have become quite widespread in recent years. Yaşar-Sağlık and Yıldız (2021) found that the number of studies on the use of Web 2.0 tools in language teaching has increased in the last five years. In particular, the design of digital materials in Turkish language teaching (Çocuk, 2023), the use of technology (Bahşi, 2024; Karakose, 2024), activity suggestions for the use of Web 2.0 tools in support of skills (Kırkkılıç et al., 2022), web-based applications for listening education (Kır & Aytan, 2023), and the increase in studies of prospective teachers to produce activities using Web 2.0 tools (Süğümlü, 2023) are some of the indicators of the need for these studies to support their effective utility in education.

Some studies, however, have concluded that teaching with Web 2.0 tools does not make a significant difference in academic achievement. Batıbay (2019) examined the effects of Web 2.0 applications on motivation and achievement in Turkish lessons through the Kahoot example. The study found that the use of Kahoot positively affected achievement in Turkish lessons to a certain extent, but this effect was not statistically significant. Likewise, Özipek (2017) examined the effect of the Padlet application on students' academic achievement and their attitudes towards technology and Turkish lessons and concluded that using Padlet during the research process positively affected students' academic achievement in Turkish lessons but did not create a significant difference in favor of the experimental group. These controversial results may also be related to the differences in application times, characteristics of groups, and materials used. In addition, since students now use such applications in and out-of-school learning, students in the control groups may have also improved.

6. Conclusion

The results of the current study suggest that Web 2.0 applications, which organize the learning content, address different learning needs, make the learning experience remarkable and fun, facilitate the development of basic language skills, and allow students to be active in the lesson with rich content, can be used functionally in Turkish lessons. Educators should use Web 2 tools in their lessons as an important tool for structuring learning environments that are more participatory and contemporary, considering the goals they want to achieve and the individual needs of students. In today's educational approaches, information flows not only from the teacher to the student but also through the collaborative involvement of students. Therefore, creating multiple learning environments where students experience, apply, concretize, and structure with visual supports is necessary in the learning-teaching process.

The impact of more advanced technologies that may replace Web 2.0 tools in the future is also an important topic of discussion. With their studies on the opportunities and challenges of adapting Web 3.0 to education, Fan et al. (2024) emphasized that structuring educational processes with technology is inevitable, so the process must be planned appropriately from infrastructure to process. In particular, they aimed to transform educational processes by emphasizing user privacy and data security. Such developments show that the tools used in the current study can be supported

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by more powerful technologies in the future, and learning experiences can be made even more efficient.

7. Implications and Limitations

Although the current study examined the effect of Web 2 tools on students' reading and listening comprehension skills, it also has some limitations. Few studies have been conducted on developing reading and listening skills in the mother tongue with Web 2 tools, which reduces the generalizability of the results. To fill the gaps, more detailed studies should be carried out for each skill (reading, listening, speaking, writing). In addition, studies that guide teachers who want to prepare subject-specific activities using different Web 2 tools should also be conducted.

The study group in the current study consisted of fifth-grade students from a public school. In order to increase the generalizability of the results, the study can be repeated with a maximum diversity of samples in different regions and grade levels by utilizing different innovations. In the study, tools such as Popplet, Educandy, Wordwall, Learning Apps, and Emaze were selected in accordance with the existing activities in the textbook. In order to evaluate the long-term effects, it would be possible to design new activities that are not limited to the textbook. However, different Web 2 tools are used over a more extended period, which would show the effect of Web 2 tools on the development of skills more clearly.

In this study, only the activities in the textbooks were used. The study by Karakuş (2014) suggested that the reading and listening texts in Turkish books included samples of incorrect language and expressions, were inadequate in literary terms, and were unsuitable for students' levels. Textbooks at different grade levels contain texts that have no literary quality, are not prepared in accordance with the developmental characteristics of children, and contain intense didactic instructions. In addition, the activities accompanying the texts in the textbooks do not often allow students to think, comment, and reinforce the information learned (Dilidüzgün, 2004). Despite these shortcomings, the texts and activities in the textbooks can be made more functional by supporting them with Web 2.0 applications.

Declarations

Author Contributions. A.K.: Literature review, conceptualization, methodology, data analysis. E.K.T.: review-editing and writing, original manuscript preparation. All authors have read and approved the published version of the article.

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